

WHAT IS CLAIMED IS:

1. A process for cooling polyethylene terephthalate pellets exiting a polycondensation solid stating reactor in a polyethylene terephthalate production process, comprising  
5 contacting pellets exiting a solid stating reactor with liquid water in an amount sufficient to lower the temperature of said pellets to a first temperature within the range of about 50°C and about 120°C, removing liquid water from said pellets, and recovering cooled pellets containing about 10 weight percent  
10 or less of water.
2. The process of claim 1, wherein said step of contacting is effected by at least one spray of water which contacts said pellets.
3. The process of claim 1 wherein said step of contacting comprises directing pellets exiting said solid stating reactor into a moving  
15 stream of water.
4. The process of claim 1, wherein following cooling to said temperature within the range of about 50°C and about 120°C, said pellets are introduced into a mechanical dryer.
5. The process of claim 4, wherein said dryer is a paddle  
20 dryer or a fluidized bed dryer.
6. The process of claim 4, wherein pellets are separated from at least a portion of water associated with said pellets by mechanical means before entry into said dryer or within said dryer.
7. The process of claim 4, wherein drying is effected  
25 without the addition of external heat.
8. The process of claim 4, wherein said dryer is heated by process heat derived from another portion of said PET production process.
9. The process of claim 1, wherein water used in the process is recovered and recirculated to the process.

10. The process of claim 9, wherein prior to contacting pellets in said cooler, water being recirculated to the process is chilled.

11. The process of claim 10, wherein water being recirculated is chilled by means of a heat exchanger.

5 12. The process of claim 1, further comprising removing liquid water from wet pellets exiting said cooler, said wet pellets having a first temperature of from about 50°C to about 120°C to provide moist pellets having a first water content of less than 60% by weight, and volatilizing water from said moist pellets due to heat retained by said pellets, and recovering  
10 pellets having a second temperature lower than said first temperature and a water content lower than said first water content.

13. The process of claim 12, wherein said step of volatilizing water takes place in a mechanical dryer in a flow of gas.

14. The process of claim 13 wherein said gas is not heated  
15 prior to entry into said dryer.

15. The process of claim 12, wherein the water content of pellets following said step of recovering is less than 2% by weight.

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